

# EXECUTIVE SUMMARY

## ENVIRONMENTAL IMPACT ASSESSMENT

### **MINI CEMENT PLANT:200 TPD**

**PROPONENT:**

**MAHABALI CEMENTS LTD.**

#### **Factory**

Modertoli  
Doboka P.O.  
Nagaon District  
Assam

#### **Office**

1<sup>st</sup> Floor, LIC Building  
J.K.Kedia.Road  
Hojai  
Nagaon District  
Assam

**CONSULTANT:**

**PARYAVARAN LABS(I) LTD**

**Plot:1052, Ayyappa Society**

**Madhapur**

**Hyderabad – 500081**

## **1.0 GENERAL**

### **1.1 PREAMBLE**

M/s Mahabali Cements Limited (MCL) has proposed to setup a Mini Cement manufacturing Unit. The proposed capacity of the company is 200 MT per day (200 TPD). The Unit location is proposed at Modertoli village, Doboka Revenue Circle, Hojai Sub-Division, Nagaon District of Assam state. The unit operates in the manufacture of cement. The process involves Crushing Section, Storage & Proportioning, Raw Milling Blending & Homogenization, Palletizing & Burning, Clinker/gypsum crushing, storage & proportioning Cement Milling and Storage & Packing.

The total project cost will be around 780 lakhs. Out of it land, building and machinery cost will be 556 lakhs.

In order to assess the likely impacts arising out of the proposed project, MCL had appointed PARYAVARAN LABS (INDIA) LTD., HYDERABAD to undertake the Rapid Environmental Impact Assessment (REIA) study for the various environmental components which may be affected, to assess the impact arising out of the proposed project and to prepare a detailed environmental management plan (EMP) to minimize those adverse impacts. It also examines the possible impact on the people, their home land or their livelihoods, or to other nearby developments.

### **1.2. UTILITIES**

#### **1.2.1 POWER**

The total connected load is 600 KVA which is under HT limits. Proposed power shall be obtained from ASEB. However, One D.G sets of 250 KVA is also proposed to be installed in the scheme as a stand by to the ASEB connection

#### **1.2.2 WATER**

Total water requirement will be around 100 KLD for cooling + administrative purposes. It will be met by bore well within the project site.

### 1.2.3 MANPOWER

The regular manpower required for administration, and production purposes will be around 60.

## 1.3 SITE

### 1.3.1 SITE SELECTION

The Project site is located at Modertoli Village and 7 Kms from Doboka Town, 8 km Lanka Rly. Station and 1 kms from National High way No.36. Nagaon Town is 23 km away from the project site and 35 Kms from Lanka Town. The land falls under Modertoli village, Doboka Revenue Circle, Nagaon District of Assam state. The company has acquired 14400 M<sup>2</sup> of land .

As for transportation of goods, there is already existing black topped roads to the project site. This is quite adequate for the possible truck movement envisaged. Total trucks required will be for RM – 26 Nos, & for FG – 20. Total 46 per day.

26° -10' North Latitude 92° -58" East Longitude. The average annual rainfall is 1760 mm. Predominant wind direction is NE. Calm conditions are prevalent more. The minimum to maximum temperatures and Relative humidities of the region during the winter season are 12°C to 29°C and 50% to 93% respectively.

## 1.7 PROCESS DESCRIPTION:

### 1.7.1. RAW MATERIALS

| Raw Material     | Quantity/Day | Source                                |
|------------------|--------------|---------------------------------------|
| Limestone        | 272.00 MT    | Nearby sources(N.C.Hills & Meghalaya) |
| Clay             | 034.00 MT    | Nearby                                |
| Coke breez /coal | 050.00 MT    | Nearby (Assam & meghalaya)            |
| Gypsum           | 008.00 MT    | Nearby (Bhutan & rajasthan)           |

## 1.7.2 MANUFACTURING PROCESS OF PRODUCT

Process Flow Diagram :



**Brief Manufacturing Process:**

- 1. Crushing Section:** - The raw materials mainly limestone, clay, coke are crushed in the separate crushers and stored automatically into the respective silos.
- 2. Storage & Proportioning:** - The different raw materials are extracted from the silos in the desired proportion through table feeders and conveyed to raw mill.
- 3. Raw Milling:** - The raw mix is ground into a Ball Mill at desired fineness to produce Raw Meal, and transported for Homogenizing.
- 4. Blending & Homogenization:** - The raw meal is homogenized in the blending silos, and is stored automatically into a storage silo for feeding to the kiln.
- 5. Palletizing & Burning:** - The nodules are made into a nodulisor and charged into the kiln for burning. The clinker after discharge is stored in the clinker yard through deep Bucket Elevator.
- 6. Clinker/gypsum crushing, storage & proportioning:** - Clinker & Gypsum after crushing stored into the hoppers and extracted in the desired proportion with the help of table feeders and transported to the Cement mill Hopper.
- 7. Cement Milling:** - The clinker & Gypsum mix is ground in the cement mill to produce cement.
- 8. Storage & Packing:** - The cement is stored into the cement silos and aerated, tested and packed for dispatch.

## 2.0 PRESENT ENVIRONMENTAL STATUS

### 2.1 AIR ENVIRONMENT

At Project site, SPM values ranged between 65 and 126 ug/cu.m. RSPM values ranged between 27 and 43 ug/cu.m. SO<sub>2</sub> and NO<sub>x</sub> values did not exceed 8 and 12 ug/cu.m respectively. At Modertoli, SPM values ranged between 62 and 121 ug/cu.m. RSPM values ranged between 25 and 41 ug/cu.m. SO<sub>2</sub> and NO<sub>x</sub> values did not exceed 7.5 and 10 ug/cu.m respectively. At the site Bheloguri SPM values ranged between 73 and 137 ug/cu.m. RSPM values ranged between 35 and 54 ug/cu.m. SO<sub>2</sub> and NO<sub>x</sub> values at this site did not exceed 8.5 and 12.5 ug/cu.m respectively.

At Sardargaon upwind site SPM values were between 67 and 140 ug/cu.m. RSPM values ranged between 36 and 57 ug/cu.m. SO<sub>2</sub> and NO<sub>x</sub> values at this site did not exceed 8 and 11 Ug/cu.m respectively. At the site Changmajigaon SPM values ranged between 45 and 97 ug/cu.m. RSPM values ranged between 22 and 34 ug/cu.m. SO<sub>2</sub> and NO<sub>x</sub> values at this site did not exceed 6.0 and 7.5 Ug/cu.m respectively. At the site Doboka SPM values ranged between 78 and 161 ug/cu.m. RSPM values ranged between 45 and 63 ug/cu.m. SO<sub>2</sub> and NO<sub>x</sub> values at this site did not exceed 12 and 16 Ug/cu.m respectively.

### 2.2 NOISE ENVIRONMENT

**TABLE 2.2.2** EQUIVALENT DAY-NIGHT NOISE LEVELS IN THE STUDY AREA

| Location            | Equivalent levels |       |           |
|---------------------|-------------------|-------|-----------|
|                     | Day               | Night | Day-Night |
| 1. Project Site     | 51                | 43    | 52        |
| 2. Modertoli        | 48                | 40    | 49        |
| 3. Bheloguri        | 52                | 44    | 53        |
| 4. Sardargaon       | 51                | 41    | 51        |
| 5. Changmajigaon    | 35                | 27    | 36        |
| 6. Doboka           | 62                | 54    | 63        |
| 7. Bhogiramgaon     | 49                | 41    | 50        |
| 8. Changmaji pathar | 44                | 36    | 45        |
| 9. Sarupathar       | 50                | 42    | 51        |
| 10. Jabrakhuwa      | 49                | 41    | 50        |

## **2.3 WATER ENVIRONMENT**

### **2.3.3 WATER BALANCE**

The Water requirement will be 100 cu.m/day. This water requirement will be met by bore wells. The major water consumption is in the cooling and domestic. The process does not generate any effluent and mainly of the waste water is from the sanitation units. The water balance is given in Table 2.3.4

## **2.4 LAND ENVIRONMENT**

### SOIL ANALYSIS

For land environment studies 5 villages were selected to understand the physico-chemicals and biological properties of the soil. The major soils of this area may be categorized into Sandy new alluvium soils comprising heavy loams. Physico-chemical properties of soils (Texture, infiltration, Cation Exchange Capacity, organic matter and moisture), soil biological parameters studied for impact Identification. In this area, soil is predominantly sandy Soil in nature. The moisture content is generally higher in all areas. The porosity (water holding capacity in soil) is generally high. On the basis of chemical properties, soil is slightly alkaline in nature with pH ranging between 8.1. to 9.0

## **2.5.SOCIO ECONOMIC ENVIRONMENT**

### LOCATION:

The Project site is located at Modertoli Village and 7 Kms from Doboka Town, 8 km Lanka Rly. Station and 1 kms from National High way No.36. Nagaon Town is 23 km away from the project site and 35 Kms from Lanka Town. The land falls under Modertoli village, Doboka Revenue Circle, Nagaon District of Assam state. The company has acquired 14400 M<sup>2</sup> of land .

The land around the proposed site is mixed are with main Urban and rural. Base- line data on the socio-economic conditions of the villages within 10 KM radius indicates availability of basic amenities like hospitals, educational institutions public transport. Jamunamukh Railway station is about 8.0 KM from the proposed MCL site.

### **3.0 PREDICTION OF IMPACTS**

#### **3.1. PREDICTION OF IMPACT ON AIR ENVIRONMENT**

In the Proposed MCL unit there are no major stacks Only process vents are present. Among process vents only one stack will be provided for Kiln (120 feet height). As there are no boilers air quality simulation models need not be used. Only vents attached to dust collection systems where collected dust is recycled into the process are present. The impact on air quality due to automobile emission has been predicted to be insignificant because the anticipated increase in vehicular movement (46 trucks per day) due to the proposed project is marginal. The impact of these emissions will be limited to a very short distance. The roads from the nearby towns to the plant site are tar roads and hence the fugitive emissions due to vehicular traffic will be insignificant.

The use of the generators is very occasional and as such the impact of its emissions on the air quality will be insignificant. The impacts, if any, will be limited to a very short distance and will also be very occasional. Existing ground level concentrations of ambient air quality monitoring and static air volume sampling also was undertaken as a reference.

#### **3.2 PREDICTION OF IMPACT ON NOISE ENVIRONMENT**

The main Noise generating sources are Generators and compressors. Both the sources are enclosed with acoustic proof material to cut down the noise levels. So the impact of noise is minimized.

#### **3.3 PREDICTION OF IMPACT ON WATER ENVIRONMENT**

The proposed MCL plant requires water 100 cu.m/day. Total required water will be met by bore wells within the factory premises. Cooling requires 95 cu.m/day of water will be totally consumed. Domestic washing requires 5 cu.m/day. There is no discharge of effluents and as such no effluent treatment plant is envisaged by the project authorities. However a septic tank followed by soak pit will be constructed to receive the sewage wastes.

Sufficient ground water is available in and around the project site. One number of rain water harvesting pits are provided within the plant area to recharge ground

water which will be a positive impact to the water environment. The details of rain water harvesting pits are further addressed in EMP.

### **3.4 PREDICTION OF IMPACT ON LAND ENVIRONMENT**

Solid waste generated from pollution control systems like bag filters will be recycled into the process and no disposal on to the land. So there will not be any load on land. There is no discharge of liquid effluents on to the land.

### **3.5 PREDICTION OF IMPACT ON SOCIO ECONOMIC ENVIRONMENT**

Prediction of the socio-economic impacts of MCL would be totally a positive main due to the employment opportunities to the skilled and un-skilled of the local villages. Also Health, educational facilities and communication by roads, will be improved which will be positive impact to the socio-economic environment.

The proposed project activities will improve the general environment by planting more number of trees through a planned green belt development which will improve Aesthetic value of the region.

On the whole the project will have a favorable ranking with the local inhabitants and will be looked upon as a blessing for development of the area.

## **4.0 ENVIRONMENTAL EVALUATION SYSTEM**

### **4.6 OVERALL IMPACT EVALUTION**

The net environmental impact due to activity of MCL plant at Modertoli as indicated by ecology is positive. It is attributed to green belt development and land use. The net impact on environmental pollution is negative. The negative impact is mainly due to the slight rise in levels of air pollutants. The human interest parameters show encouraging positive impact due to better job opportunity, transportation, medical facilities. Over all impact is therefore positive from the proposed MCL plant. Table 4.1)

## **5.0 ENVIRONMENT MANAGEMENT PLAN**

An environmental management plan (EMP) is prepared to minimise those adverse impacts. It also examines the possible impact on the people, their home land or their livelihoods, or to other nearby developments.

## **5.1 CONSTRUCTION PHASE.**

In the present project the potential for environmental pollution during construction phase is more and control of pollution is of considerable importance.

## **5.2 POST CONSTRUCTION PHASE**

### **5.2.1 AIR POLLUTION**

The air pollutants from the proposed MCL will be very minimal. The ambient air quality levels will be within the standards laid down by Central Pollution Control Board (CPCB). The exhaust/ventilation fans will be adequately chosen taking into account the area of the premises.

### **5.2.2 EMISSION DETAILS**

#### **5.2.2.1 EMISSION SOURCES**

The major sources of emission from the proposed activity are

1. CRUSHING SECTION - Total dust or Suspended particulate matter
2. RAW MILL SECTION - Total dust or Suspended particulate matter
3. KILN SECTION - Suspended Particulate matter, SO<sub>2</sub> and NO<sub>x</sub>.
4. CEMENT MILL - Total dust or Suspended particulate matter.
5. Standby Power Supply - Suspended Particulate matter, SO<sub>2</sub> and NO<sub>x</sub>.

(DG sets)

### **AIR POLLUTION SOURCES & CONTROL MEASURES**

In the proposed Mini cement plant suitable pollution control equipments shall be selected which will ensure that the emission levels are maintained below the prescribed units. i.e. All the pollution control equipment in the proposed cement plant is designed for an out let emission of less than 50 mg/m<sup>3</sup> of Suspended particulate matter.

#### **HAMMER MILL:-**

420 cfm (714 m<sup>3</sup>/hr) (3H.P.)

(Cyclone separator with Multi cyclone collector or pulse-jet bag filter system)

#### **RAW MILL:-**

1280 cfm (2175 m<sup>3</sup>/hr) (5H.P.)

Rivers pulse-jet bag filter system

**CEMENT MILL :-**

1280 cfm (2175 m<sup>3</sup>/hr) (5H.P.)

Rivers pulse-jet bag filter system

**KILN :-**

820 cfm (1393 m<sup>3</sup>/hr) (7.5 H.P.) output 100 mm dia chimney.

Impingement plate crabbers i.e. Air wet washer system  
with 4000 cfm twin lobe rotary compressor.

**5.2.2 NOISE**

The MCL is procuring Compressors and Generators with acoustic enclosures

**5.2.3 WATER ENVIRONMENT**

**5.2.3.1 WASTE WATER**

There will be no waste water generated due to the process. The sanitary waste is diverted into a septic tank followed by soak pit.

**5.2.3.2 RAIN WATER HARVESTING**

Based on available data on roof area - 1 nos. rain harvesting pits have been envisaged, to ensure charging of ground water. Pits will be made with gravel and sand filled in as filtering media.

**5.2.4. SOLID WASTE MANAGEMNT**

**Solid Waste Generation** is mainly from the pollution control equipments which is negligible but Periodically recycled after the containers placed beneath the rotary valve of the respective Dust Collectors are adequately filled in.

**5.3 GREEN BELT DEVELOPMENT**

To maintain the ecological balance MCL authorities are planning to develop green belt around the plant. Green belt recommendations around the MCL will be evolved as per CPCB norm for noise pollution control, balancing eco-environment, soil erosion /protection, economic sustenance and aesthetics. The company has proposed to set up its new unit in 14400 Sq.m. of land.

Land usage breakup for the new unit is

- a) Buildup = 1100 Sq.m.,
- b) Storage/Stock yard+ Roads = 2400 Sq.m. and
- c) Green belt for the total plant shall be 10900 Sq.m.

#### **5.4 POST PROJECT MONITORING**

The project authorities are planning to setup Safety and Environmental cell which will be headed by an expert who reports directly to the Chief of the group. The Safety and Environmental activities of the project will be monitored by this cell.

MCL authorities will be adopting ambient air quality monitoring atleast once in a month. A weather station for wind speed, direction, temperature and rainfall will be installed within the premises of MCL. Stack emission monitoring will also be taken place monthly once.

#### **EXPENDITURE ON ENVIRONMENTAL MANAGEMENT PLAN**

| SL                            | ITEM   | RsinLakhs |
|-------------------------------|--|-----------|
| <b>CAPITAL EXPENDITURE:</b>   |  |           |
| 1                             | Air Pollution control equipment like ID fans, Bag Filters, s connected to cement, Flyash & Fibre handling systems (main equipment) including stacks. | 15.00     |
| 3                             | Sewage Treatment for Domestic waste water.   | 2.00      |
| 4                             | Emission Monitoring equipment at sources and ambient air quality in the vicinity) and laboratory.  | 5.00      |
| 5                             | Green belt development.  | 3.00      |
| 6                             | Establishment of Environment cell and Environmental Monitoring.  | 5.00      |
| 7                             | Total Capital Expenditure  | 30.00     |
| <b>RECURRING EXPENDITURE:</b> |  |           |
| 8                             | Recurring expenditure on environmental management cell and on pollution control systems  | 4.00      |

**BUDGET FOR PROPOSED WELFARE MEASURES**

| <b>SL</b> | <b>ITEM</b>                 | <b>INVESTMENT,<br/>RS IN Lakhs</b> |
|-----------|-----------------------------|------------------------------------|
| 1         | School & Education          | 1.00                               |
| 2         | Medical Services            | 1.00                               |
| 3         | Roads Development           | 1.00                               |
| 4         | Community Development       | 1.00                               |
| 5         | Supporting Self-help groups | 1.00                               |
|           | Total                       | 5.00                               |

**SUMMARY AND CONCLUSION**

MCL strongly believes in the concept of eco friendly industrialization as per standards prescribed by the State and Central Pollution Control Boards. Apart from eco -friendly operations, various socio economic development activities will be undertaken to bring about overall socio economic improvements in the areas.

Hence the project may be accorded environmental clearance.